REMARKS

Applicants thank Examiner Lau and Supervisory Examiner Jiang for their time and consideration of the present application during the telephonic interview of April 9, 2009. During the interview the written description and obviousness rejections were discussed.

As the Examiners advised that an amendment after final would not be entered, this amendment is filed with a Request for Continued Examination.

This application is amended in a manner to place it in condition for allowance at the time of the next Official Action.

Status of the Claims

Claim 21 is amended to recite the specific substituents carried by the aromatic groups and the specific biological recognition elements in a manner consistent with specification page 5, lines 20-28.

Claim 36 is amended for clarity.

Claims 21-34 were withdrawn for being directed to non-elected subject matter.

Claims 21-43 remain pending in the application.

Claim Rejections-35 USC §112

Claims 35-37, 39, 41 and 43 were rejected under 35 U.S.C. §112, first paragraph for not complying with the written

description requirement. This rejection is respectfully traversed for the reasons below, which address the four claimed features specifically objected to by the Official Action.

1-Carbamate

The position of the Official Action was that the recitation: "R^3 *representing a substituent allowing hydrolysis of the carbamate group in order to release the amine function*" does not comply with the written description requirement. The Official Action further considered that "*substituent allowing hydrolysis of the carbamate group*" is merely functional language.

Applicants respectfully disagree for the following reasons:

a) Functional language is not excluded *per se* in the first paragraph of 35 U.S.C. 112. Furthermore, 35 U.S.C. 112, states: "*An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.*"

b) The case of Charles T. Fuetterer 319 F.2d 259 refers to the patent application No. 498,089 entitled "*Tire*

Treads and Rubber Stock Therefor". This patent application claimed a rubber stock for producing tire treads, said rubber stock containing inorganic salt. The inorganic salt is defined as " *that is capable of holding a mixture of said protein and/or carbohydrate in colloidal suspension*". This definition was estimated unduly breadth and using functional language by the Examiner, and reversed by the United States Court of Customs and Patent Appeals.

The case of Charles T. Fuetterer 319 F.2d 259, states : *"[…] there is no statutory ban on the use of the "functional" language employed in the instant claims […]"* (paragraph 35).

The case of Charles T. Fuetterer, quoting the case Wabash states *"A limited use of terms of effect or result, which accurately define the essential qualities of a product to one skilled in the art, may in some instances be permissible and even desirable * * *"* (paragraph 28).

The present application does not claim the carbamate as a protecting group, but claims the use of a carbamate in a combination that is the invention. Any carbamate protecting group with a R^3 group having the described properties will function properly in the present invention.

c) Sears, Roebuck & Co. v. Harold T. Jones 308 F.2d 705 states: *"35 U.S.C. 112 provides that "*** the specification shall contain a written description of the invention, and of the*

*manner and process of making and using it***.” But this does not require a description of all the variations which might suggest themselves to one versed in the art.*” (paragraph 13).

The applicants provided to the Examiner a copy of the pages referring to carbamate protecting groups in the book by T. W. Greene, for the interview of April 9th 2009 (Also included in the appendix of this amendment). The man skilled in the art knows variation of carbamate protective group is possible, and which R^3 groups are suitable. Substituting one R^3 group, as defined in the present application specification, by another is straightforward for the man skilled in the art.

In conclusion, the use of functional language to define the group R^3 in the present application is suitable, and the present application complies with the written description requirement. Withdrawal of the rejection is respectfully required.

2-Aromatic groups

Claim 21 is amended to recite :

“… *R representing a hydrogen atom, a linear or branched alkyl group of 1 to 12 carbon atoms, or an aromatic group, or aromatic groups carrying substituents on the aromatic ring, said substituents selected from the group consisting of methyl, ethyl, chlorine, bromine, iodine, nitro, hydroxyl, methoxyl and acetamido substituents, or…*”

3-Biological recognition elements

Claim 21 is amended to recite:

"… *R representing a biological recognition element, said biological recognition element being selected form the group consisting of an amino acid derivative, a peptide, a monosaccharide, and an oligosaccharide, a multiplication element with several branchings, which branchings comprise glucide groups which can be identical or different, or also a fluorescent or radioactive visualization or detection probe.*"

4-Sufficiently large size

Claim 36 is amended to recite:

"*36. An inclusion complex of a compound according to claim 21, with a pharmacologically active molecule, the molar ratio between the compound and the pharmacologically active molecule being approximately 10:1 to approximately 1:2, characterized in that the pharmacologically active molecule is a ditopic molecule, ~~capable of interacting simultaneously with two cyclodextrin sub units, or a sufficiently large size~~*"

Therefore, in light of the above discussion, withdrawal of the rejection is respectfully requested.

Claims 35-37 stand rejected under 35 USC §103(a) as being unpatentable over ORTIZ-MELLET et al. 2002 ("ORTIZ-MELLET") in view of KOTTER et al. 1998 ("KOTTER"). This rejection is respectfully traversed for the reasons that follow.

ORTIZ-MELLET was offered for teaching conjugates of cyclodextrin dimer linked by a branching element to a biological marker, the structure as a drug delivery system, and that taxotere could be used as the guest compound. ORTIZ-MELLET was also offered for teaching the biological marker moiety, and that it is advantageous to use long spacer arms. The Official Action acknowledged that ORTIZ-MELLET failed to disclose or suggest compound 6 (i.e., the elected species) of the present invention.

KOTTER was offered for teaching the compound tris-(2-aminoethyl) amine, i.e., compound 20, as a branching element known to be a useful linker between saccharide moieties and in the field of carbohydrate-protein interactions.

The position maintained in the Official Action was that it would have been obvious for one skilled in the art to substitute the branching element used in ORTIZ-MELLET by the one used in KOTTER, i.e., compound 20, in order to arrive at the claimed invention.

In support of this position, the Official Action relies on case law. However, it appears that three particular citations

found in the Official Action are not relevant to the instant case.

1. *In re Fulton*, 391 f.3D 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004) cited in the second paragraph page 13 of the Official Action. This citation is not relevant, as KOTTER does criticize, discredit, and discourage selecting branching structure 20. For example, KOTTER discloses that the method of obtaining the structure is difficult and provides a yield that is about 1/3 of the other branching structure 13 (i.e., 27% vs. 72% yield). Applicants further explain how KOTTER criticizes/discredits/discourages the feature on which the Official Action relies in greater detail below.

2. *Ex parte* Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989) and *In re Cofer*, 354 F.2d 664 148 USPQ268 (CCPA 1966) cited in the third paragraph of page 13 of the Official Action. These citations are relied in support that the combination of references teaches the claimed invention. However, applicants previous arguments were directed to the motivation for combining the references in terms of the teachings of the references, e.g., ease of synthesis. Indeed according to KOTTER an added step of purification is not desired.

3. In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) is cited on page 14, first full paragraph. This citation refers to a single reference, not a combination of references. The combination of references offered teach

- longer spacer arms are better for the purpose of Oritz-Mellet,
- thiourea linkages are less efficient for the purpose of Oritz-Mellet, and
- the thiourea linkages of Kotter are shorter, more difficult to use in synthesis, and less productive the other linkages disclosed.

For these three reasons, it is believed that the citations provided do not support the finding of obviousness.

Indeed, the factual findings of the cited references suggest that the claimed invention is unobvious :

KOTTER

The Official Action did not consider KOTTER to be teaching away from the branching element 20, and stated "*[t]he prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit or otherwise discourage the solution claimed…*" *In re Fulton*, 391 F.3d 1195, 1201.

However, KOTTER does not simply disclose more than one alternative.

KOTTER teaches the inhibitor effects of different compounds (page 2196, Table 1). Inhibition haemagglutination tests and IC_{50} values of the mannosides cluster 16, 19, 23 and 24

are compared to methyl α-D-mannopyranoside. KOTTER teaches that methyl α-D-mannopyranoside is a low affinity inhibitor (page 2196, left column, second paragraph).

Compounds 16, 19, 23 and 24 are mannose derivatives. They differ from each other by their trivalent unit (respectively 13, 17 and 20) and by the linkage nature between the trivalent unit and the mannose unit.

KOTTER teaches: "*thiourea linked cluster 23 had a very high IT and IC50, and therefore was a worse inhibitor than methyl α-D-mannopyranoside*" (page 2196, left column, second paragraph).

KOTTER teaches that compound 23 is worse than a low-affinity inhibitor. This teaching unambiguously criticises and discredits compound 23.

KOTTER teaches: "*The differences in the inhibition potencies of compound 23 on the one hand and compounds 16 and 19 on the other may be due to conformational differences or may be related to the nature of the linkage*" (page 2196, left column, second paragraph).

KOTTER teaches that poor inhibition of compound 23 is probably due to the structure of the trivalent unit (conformation), or to the nature of the thiourea linkage.

Thus, one of ordinary skill in the art would have concluded that

* KOTTER criticizes and discredits compound 23.

* KOTTER teaches that the poor activity of compound 23 is due either to the structure 20, or to the thiourea linkage.

This conclusion, however, is contrary to the present invention, as both the structure 20 and the thiourea linkage are used in the present invention.

Thus, KOTTER criticizes and discredits the bridging element and the linkage used in the present invention, and KOTTER clearly teaches away from the proposed modification.

ORTIZ-MELLET

The Applicants provide a Declaration Under Rule 132 by Dr Jacques Defaye. Dr Defaye is a co-author of the article by ORTIZ-MELLET and co-inventor of the present application.

A curriculum vitae and list of publications by Dr Defaye is provided.

The present declaration states that combining the teachings of ORTIZ-MELLET and KOTTER was not obvious for the man skilled in art at the time the invention was made, because of:

- the spacer arms length,
- the ease of synthesis, and
- the biorecognition efficiency.

Therefore, claims 35-37 are unobvious over the combination of ORTIZ-MELLET and KOTTER.

Claims 39, 41 and 43 were rejected under 35 USC §103(a) as being unpatentable over ORTIZ-MELLET in view of KOTTER, further in view of HAMADA et al. US 5,684,169 ("HAMADA"). This rejection is respectfully traversed for the reasons that follow.

ORTIZ-MELLET and KOTTER were offered for the reasons discussed above.

HAMADA was offered for teaching "*a pharmaceutical composition comprising a cyclodextrins inclusion complex of taxol*", and "*optimization of the dosage is within the level of one of the ordinary skill in the art*" (Official Action, page 12).

The position of the Official Action was that it would have been obvious to combine the cluster taught by ORTIZ-MELLET and KOTTER to the composition taught by HAMADA in order to perform the present invention.

However, as discussed above relative to claims 35-37, the compounds according the claimed invention are unobvious over ORTIZ-MELLET in view of KOTTER.

Thus, regardless of the ability of HAMADA to teach that for which it is offered, no pharmaceutical composition of the claimed compounds can be considered obvious over the combination of ORTIZ-MELLET, KOTTER and HAMADA.

Therefore, withdrawal of the rejection is respectfully requested.

Conclusion

In view of the amendment to the claims and the foregoing remarks, this application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our credit card which is being paid online simultaneously herewith for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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APPENDIX:

The Appendix includes the following item(s):

- T. W. Greene, Protective groups in Organic Synthesis, pp. 494- 496.

- a 37 CFR 1.132 Declaration of Dr. Jacques Defaye, along with a curriculum vitae and list of publications by Dr. Defaye.